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The Possums Infant Sleep Program: parents' perspectives on a novel parent-infant sleep intervention in Australia

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Introduction

Many parents struggle to cope with their infant's night waking. Up to 38% of Australian parents report sleep problems at four weeks post-birth;¹ 25-33% of parents seek the guidance of clinicians regarding their babies' sleep, and many more seek help from books, websites and social media.^{2, 3} There is an association between the perception of infant sleep problems, parental depression and parental insomnia, although the direction of causality is unclear.^{4, 5} Australian health professionals, sleep consultants and infant sleep programs typically focus on concern about infant overtiredness, appropriate length of day-time awake periods and naps, number of night-time wakings, appropriate bed-time and wake times, and the importance of achieving 'milestones' such as sleeping through the night, falling asleep independently, or self-settling in the night.^{6, 7}

The ways in which health professionals and sleep consultants shape expectations and implement strategies around infant sleep are culturally and historically determined.^{8, 9} Several 'waves' of behavioural intervention are acknowledged in behavioural scientific literature.¹⁰ The 'first wave' refers to behavioural interventions grounded in operant theory and responsive conditioning that came to the fore in the 1950s and 1960s, 'second wave' to cognitive behavioural therapy as developed in the 1980s, and 'third wave' to the latest cognitive behavioural therapies that incorporate acceptance and mindfulness and place emphasis on the function of cognition. A particular interpretation of first wave behavioural intervention (FWB) was applied to what clinicians defined as parent-infant sleep problems and remains dominant in Australia. Such approaches advocate that infant sleep resilience and independence are fostered by delaying response to the baby's communications; that 'bad sleep habits' are created by responding to infant cues and by breastfeeding to sleep; that babies must learn to 'self-settle'; that 'sleep breeds sleep'; and that 'second sleep cycles' are required to consolidate day-time sleep.¹¹⁻¹⁴ Parents are advised that these strategies optimise sleep habits and cognitive development in later childhood. This advice is based on two assumptions: firstly, that an observed link between sleep disruptions in the first months of life and developmental problems in later childhood are causal, when it is in fact this is an association;¹⁵ and secondly, that a FWB intervention must improve outcomes, despite lack of evidence of efficacy of these interventions.¹⁶⁻²⁰ It may even be claimed that parents who provide cued care are vulnerable personalities with 'intrusive' parenting styles who struggle with 'limit-setting'.^{21, 22} However, this anticipatory guidance results in anxiety, stress and self-doubt even amongst parents who have not previously perceived a problem with their

infant's sleep.²³⁻²⁵ We and others suggest that the dominance of the FWB lens influences the questions posed and the interpretation of data in infant sleep research.^{9-13, 20, 26-28}

Cued care is a pattern of intentional and sensible responding to a baby's cues such as is practiced in responsive feeding.¹³ There is widespread acceptance of the evidence from neuroscience and psychological attachment research demonstrating that cued care optimises developmental outcomes.²⁹⁻³² In 2014 Whittingham and Douglas developed and published the theoretical frame for a paradigm shift in parent-baby sleep management, based on an evolutionary understanding of infant needs, and integrating interdisciplinary sleep science and contextual behavioural science (a 'third wave' behavioural intervention).¹⁴ The Possums Sleep Program (PSP) translates this theoretical foundation into clinical practice. The principles of the program are summarised in **Table 1**, together with examples of implementation in practice.

The first author, who is a UK researcher with 23 years' experience in evolutionary-informed maternal-infant health and mixed-methods parent-infant sleep research, and who had no previous connection to the non-profit Possums for Mothers and Babies ('Possums'), undertook an exploratory evaluation of the PSP in order to capture the views and experiences of parents accessing the Possums' clinical services with concerns about their infant's sleep. The acceptability and user experience of the intervention was assessed as an initial step in compiling the evidence-base for this program. This paper therefore presents the necessary preliminary work on parental experiences of the PSP prior to conducting a randomised trial of its effectiveness.

Participants and Methods

In early 2017 the evaluator visited what was then known as the Possums Clinic in Brisbane, Australia to become familiar with the Possums Sleep Program, to engage with parents implementing the PSP, and to elicit feedback. Ethical approval to evaluate the program was obtained from University of Queensland Research Ethics Board, with confirmation from the Board of Directors of Possums for Mothers and Babies. ('Little possum' is an Australian term of endearment for babies.) All parental participation in the evaluation was voluntary and uncompensated; written consent was obtained from all those who provided information. The Possums Clinic was, at the time, a general practice founded and owned by Possums for Mothers and Babies, and offered specialised services for parents and babies, delivered as

lactation, sleep, unsettled infant behaviour, mental health, and learning and development consultations; shared medical appointments; and skype appointments. At the time of this evaluation the PSP was delivered by the clinic's Medical Director (the 2nd author) and her staff whom she trained in the PSP approach. The PSP was delivered to families who requested help with infant sleep during post-natal appointments. Delivery of the PSP occurs during one-to-one consultations with staff, during group appointments with a nurse and GP, during skype consultations, and during home visits as appropriate for each family concerned. Such appointments are generally of one-hour duration and for Australian residents seeing GPs, much but not all of the cost is covered by Medicare rebates. Parents with private health insurance could claim some help with the fees of health professionals not covered by Medicare. A DVD and workbook supporting the PSP is available to parents from the clinic or online for a small fee (AU\$30).

Data were generated using a mixed methods approach involving a) observations made by the evaluator during group sessions of parents and clinicians during which infant sleep issues were discussed; b) individual and group discussions held by the evaluator with parents attending the clinic for infant sleep-related reasons; and c) an online survey created by the evaluator following a and b. The evaluator observed three group sessions (lasting 1 to 1.5 hours) and conducted individual and group discussions following two general education sessions and the above three groups, involving 17 mothers in total. No fathers attended group sessions, but individual feedback was obtained from two fathers following one-to-one medical appointments with clinic staff. Group sessions were co-led by a GP and a RN with IBCLC Lactation Consultant qualification. Both had been trained in implementation of the PSP approach by the developers of the program and were directly supervised by them. Participants who provided verbal feedback were all current users of the clinic. Feedback discussions were held in a private room, anonymity was assured, and staff were not involved. Group discussions were audio-recorded and transcribed; individual feedback was captured via written notes. Participants were not compensated for their involvement in this study.

The survey designed on the basis of the above face-to-face discussions included a mix of closed and open-ended questions, Likert-scale questions and free text responses. The questions were pre-tested by clinic staff and revised according to their feedback prior to release. Hosted on a secure online platform, the survey comprised eight sociodemographic / geographic questions and 33 information and evaluation questions (some with response contingent sub-questions) that aimed to elicit information about the user-experience of the

PSP. The survey web-address was publicised (via email and social media) by clinic staff to all parents accessing the clinic since its opening in April 2014, so the timing of survey completion relative to program engagement varied across participants. The survey was available online for a 3 week period following which data were downloaded to a spreadsheet, and qualitative text responses were extracted. Closed questions were quantified, while free-text responses were analysed using thematic analysis, a standard approach which includes grouping and regrouping participant statements into nested themes based on the use of particular words and phrases.²⁵ All thematic coding was conducted by the first author/evaluator and then discussed with a colleague (who played no other role in the study) who provided objective feedback on the groupings and whether these could be further collapsed or separated. Illustrative quotes for each theme were extracted to demonstrate the opinions of parents regarding the program and the broader context of parental support around sleep in early infancy. The themes emerging from this analysis are discussed below.

In order to contextualise the survey responses an audit was conducted of 299 consecutive clinic registrants from April 7th 2015 to April 6th 2016, extracting data from their records regarding maternal and infant age, relationship status, feeding method and reason for consultation.

Results

Participant sample and their infant sleep concerns

The online survey received 45 complete and 19 partial responses from 64 clinic users; 91% (58/64) of respondents were from Australia, with 9% (6/64) from overseas (3 NZ, 1 Canada, 1 US, 1 Switzerland) accessing the clinic via skype consultation. Of the Australian respondents, 91% (53/58) were based in Queensland, and 9% from elsewhere in Australia. A summary of the sample demographic characteristics can be found in **Table 2**. Mothers averaged 34 years of age (range 29-42), and the majority were partnered, well educated, and were breastfeeding their infants.

The records audit of Possums Clinic clients revealed that parents accessing the clinic's services are partnered, predominantly breastfeeding mothers, based in Queensland, with an average age of 33 years (range 19-48) **Table 2**. There were no significant differences between the demographic characteristics of the survey sample and the clinic audit sample.

Participants responding to the evaluation survey had engaged with the Possums Sleep Program when their infants averaged 20 weeks (4 months) of age; 88% had sought infant sleep guidance between 13 and 52 weeks. In comparison, mean infant age at first appointment in the clinic audit was 18 weeks; 63% (189/299) of audit parents mentioned sleep issues in their initial consultation. These infants averaged 21 weeks of age.

Primary concerns of survey respondents (entered as free text, see **Table 3**) involved frequent night waking (26/45), too little day sleep (6/45); inability to put baby down (6/45); difficulty self-setting (3/45); and maternal stress regarding infant sleep (2/45). In describing the effect of infant sleep issues on themselves these 45 parents mentioned their levels of stress, exhaustion, anxiety, irritability, depression, lack of self-care and feelings of being unable to cope. Half of the survey completers (22/45) had tried another source of help prior to accessing Possums clinic. For most (17/23) this was a first wave behavioural approach via a sleep consultant, Australian sleep school, child health clinic day program or self-help book. Of the remainder (4/23) sought help and information via online forums, while one accessed PANDA (postnatal depression support). In accessing the PSP one third (14/45) reported they knew nothing about it previously; just over a quarter (12/45) had a generally accurate idea based on prior reading, and the same proportion (12/45) expected something they described as 'evidence/science/ research based'. The remaining seven expressed vague ideas about gentle, holistic help (**Table 3**).

Responses to Likert-scale questions

These questions requested that parents rate the usefulness of the program and its components on a 5-point scale ranging from very positive, through neutral to very negative. Not all participants completed these questions, with missing data from 6-19 of 45 participants per question. Percentages are therefore not provided as they are not comparable.

Thirty-nine participants responded to whether they would use the PSP approach again if needed with 37/39 responding positively, while 35/36 respondents would recommend the program to others. Participants rated the program most strongly in being evidence based (34/34); encouraging flexibility in their parenting (36/36); respecting their choices and providing relevant information (33/33); helping them to relate better to their baby (30/31), deal with difficult thoughts and feelings (32/33), and become the parent they wanted to be (33/34). In terms of practical help 26/27 respondents felt they received useful information, and 22/26 felt they achieved at least some of their infant sleep goals.

User views on program content, acceptability and benefits

Forty-four respondents provided an explanation of the key components of the PSP guidance they had received, emphasising aspects such as normalising infant sleep; improving understanding of how sleep works; de-emphasising day time naps; attending to baby's sensory needs and circadian clock; making night times easier, and experimenting to discover what worked for their baby. Several parents stated that the PSP guidance changed their attitude about their infant's sleep, to become more flexible, accept their baby's normal sleep and have greater confidence in their existing approach. The majority of respondents (41/43) felt the guidance received was helpful, while two (who both accessed the program remotely) felt it wasn't helpful, stating they needed more support in its implementation.

Themes emerging from the comments of 41 participants who felt they benefited from the PSP indicated that they a) experienced improvements in their self efficacy as parents, b) adjusted their expectations about their baby's sleep resulting in reduced stress and anxiety, and c) found the PSP to transform their parenting journey (**Table 4**). Although 22 participants explicitly reported an improvement in their infant's sleep, others reported that the key benefit gained was in refocussing away from their infant's sleep and felt that the guidance they received from PSP permitted them to reject the pressure of the mainstream sleep approaches that were being used by other health professionals, and which made them uncomfortable. It is important to acknowledge that some respondents found the rejection of mainstream infant sleep advice to be difficult at first (**Table 5**).

In order to assess how well the respondents had understood and engaged with the PSP approach, participants were asked to summarise the infant sleep program as if describing it to another new parent. Parents who responded did so in juxtaposition with what they perceived the mainstream infant sleep guidance to be (**Table 5**). Their summaries of the PSP approach emphasised that being responsive to infant needs, enjoying life with your baby, experimenting and becoming an expert in your own baby, using the evidence-informed sleep science underpinning the PSP were all very important to parents.

User-views on challenges

For two families, ignoring the mainstream sleep advice was too difficult, causing them to choose a different approach. If both parents did not attend clinic consultations, they sometimes found getting on the same page problematic e.g. "husband annoyed at ... not teaching baby to self-settle" (P54). Other families reported different aspects of the program to

be challenging, such as starting the day at the same time, not having a fixed routine, not focussing on duration of sleep, de-emphasising swaddling or wrapping, allowing baby to only cat nap during the day, and not worrying about 'over stimulation'. For some parents, the biggest issue they had to confront in implementing the Possums approach was accepting their baby's evolved sleep biology e.g. "That we couldn't magically make our baby only wake up once a night We had to work with our baby's needs" (P46).

Discussion

This sample of highly educated and well-off parents (drawn from a clinic population attracting a similar clientele) had struggled with reconciling their infants' sleep behaviour, comments from other parents, and the advice of many Australian child health nurses and other clinical experts. Some participants were attracted to Possums' evidence-informed approach to infant sleep, while others were simply seeking any available help. Although there was much in the PSP that parents found challenging to accept initially, most survey respondents embraced this approach, felt it empowered them to make their own parenting choices, and to parent according to their values. The survey responses of parents reflected the program's goals of a reduced emphasis on achieving (often arbitrary) infant sleep goals, better understanding and acceptance of normal infant sleep patterns, and relief from the stresses associated with attempting to implement an approach to infant care they found distressing. These parental perceptions of the PSP now need to be tested in a randomised trial.

We acknowledge there are many limitations to this initial assessment of the acceptability and user experience of the PSP including the small sample size, potential for bias with a single evaluator, and lack of a control group. The respondents who completed the survey were self-selected and although two respondents stated they had not found the program helpful, other such families may have failed to engage or withdrawn themselves from the clinic's mail-list. Both the respondents and the Clinic clientele in general were well-off and well-educated, and we cannot assess whether parents from other socio-demographic backgrounds would find the program equally beneficial. For some respondents the survey was completed retrospectively. Given the positive response of parents to the PSP overall, we are now working to assess the efficacy of the programme for larger and more diverse samples in other setting using validated measures to assess PSP outcomes.

The Australian mainstream approach to infant sleep focusses primarily on ‘sleep problems’ as infant behavioural disorders, which (it is argued) are underpinned by ‘intrusive’ parental behaviour and parental ‘limit-setting’ problems.³⁵ Australian families are commonly advised that there is a developmental window in the first three months of life in which they need to implement self-settling strategies.^{16, 21, 36} In the unique Australian residential tertiary institutions popularly known as ‘sleep schools’, parents are typically encouraged to persist with ‘shush and pat’ interventions¹⁸ which aim to teach infants to self-settle without dependence on feeds or being held, to increase duration of day-time sleeps with ‘second sleep cycles’, to delay responses to their infants’ cues, to stop feeding to sleep, and to leave the room for increasing intervals although their infant is crying. The promotion of FWB approaches in Australia as a public health strategy for infants persists due to historically determined beliefs despite evidence of limited efficacy,^{16-18, 35, 37} and the incongruence of this approach with an evolutionary understanding of the needs of infants, particularly under 6 months of age.³⁸

Conclusions

The Possums infant sleep program is based on principles that are intended to offer neuroprotective developmental care to families managing infant sleep challenges. The program educates parents in basic sleep science and how this relates to their infant’s sleep development. It offers strategies for optimising healthy function of the biological sleep regulators to protect against excessive night-wakings. It supports values-clarification and empowers parents to adjust their expectations and to experiment with how they might meet their babies’ needs. It supports cued care according to the most recent neuroscience and psychological attachment research, with the aim of promoting secure attachment, adequate sleep, and parent-infant enjoyment. In this preliminary mixed methods study by an independent evaluator, the approach was found to be acceptable to parents and perceived by them to align parent and infant needs, improve their quality of life, and reduce their focus on perceived infant sleep problems. Parental perceptions of PSP should now be tested in diverse populations of families and also tested for differences in family health outcomes including through using validated scales to measure potential change in parental fatigue, anxiety, and depression and objective measures such as actigraphy or overnight video recording to test the impact on night-time parenting practices.

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